Hyunjoon Kim

hyunjoonkim@hanyang.ac.kr ⋄ https://hyunjoon526.github.io

RESEARCH INTERESTS

Big Data Analysis, Data Mining, Graph Neural Networks

WORK EXPERIENCE

Department of Data Science, Hanyang University   *Sep. 2021 - Present*
Assistant Professor

SAP Labs Korea   *Oct. 2020 - Aug. 2021*
Senior Developer
Intelligent Data Processing: Improved cardinality estimation of HANA
HANA Cloud Identity Management: Developed the identity management service for HANA Cloud

EDUCATION

Seoul National University, Seoul, Korea   *Sep. 2013 - Aug. 2020*
Ph.D. in Computer Science and Engineering
Thesis: Fast Graph Query Processing Algorithms Using Dynamic Programming
Advisor: Prof. Kunsoo Park
Overall GPA: 4.05/4.3

Seoul National University, Seoul, Korea   *Mar. 2009 - Feb. 2013*
B.S. in Computer Science and Engineering
Overall GPA: 3.91/4.3 (*Summa Cum Laude*)

PUBLICATIONS

Hyunjoon Kim, Yunyoung Choi, Kunsoo Park, Xuemin Lin, Seok-Hee Hong, and Wook-Shin Han. "Fast subgraph query processing and subgraph matching via static and dynamic equivalences", The VLDB Journal, pp. 1-26, 2022.

Hyunjoon Kim, Yunyoung Choi, Kunsoo Park, Xuemin Lin, Seok-Hee Hong, and Wook-Shin Han. "Versatile Equivalences: Speeding up Subgraph Query Processing and Subgraph Matching." In Proceedings of the International Conference on Management of Data (ACM SIGMOD), pp. 925-937, 2021.

Hyunjoon Kim, Seunghwan Min, Kunsoo Park, Xuemin Lin, Seok-Hee Hong, and Wook-Shin Han. "IDAR: Fast Supergraph Search Using DAG Integration." Proceedings of the VLDB Endowment, 13(9):1456-1468, 2020.

Seongi Hong, Geonmo Gu, **Hyunjoon Kim**, and Kunsoo Park. "Performance Comparison of Adaptive Matching Orders for the Subgraph Isomorphism Problem." KIISE Transactions on Computing Practices, 26(1):38-43, 2020.

Myoungji Han, **Hyunjoon Kim**, Geonmo Gu, Kunsoo Park, and Wook-Shin Han. "Efficient Subgraph Matching: Harmonizing Dynamic Programming, Adaptive Matching Order, and Failing Set Together." In Proceedings of the International Conference on Management of Data (ACM SIGMOD), pp. 1429-1446, 2019.

Joong Chae Na, **Hyunjoon Kim**, Seunghwan Min, Heejin Park, Thierry Lecroq, Martine Léonard, Laurent Mouchard, and Kunsoo Park. "FM-index of Alignment with Gaps." Theoretical Computer Science, 710:148-157, 2018.

Joong Chae Na, **Hyunjoon Kim**, Heejin Park, Thierry Lecroq, Martine Léonard, Laurent Mouchard, and Kunsoo Park. "FM-index of Alignment: A Compressed Index for Similar Strings." Theoretical Computer Science, 638:159-170, 2016.

Myoungji Han, Jihyuk Lim, Junyoung Choi, **Hyunjoon Kim**, Jeongjoo Seo, Cheol Yu, Sung-Ryul Kim, and Kunsoo Park. "A Malicious Traffic Detection Method Using X-means Clustering." Journal of Korean Institute of Information Scientists and Engineers (KIISE), 41(9):617-624, 2014.

PROJECTS

Framework of Practical Algorithms for NP-hard Graph Problems   Apr. 2018 - Sep. 2020
- · Designed and implemented efficient graph query processing algorithms
- · Outperformed state-of-the-art algorithms by up to several orders of magnitude.
- · Published three top-tier conference papers.

Chinese Character Input System   Oct. 2015 - Sep. 2018
- · Developed Chinese characters typing software for Android, and obtained two U.S. patents.

Multi-omics Analysis Algorithms and Platforms   Oct. 2014 - Dec. 2016
- · Developed a compressed and searchable index FMA for similar strings.
- · Experimented on genome sequences of the 1000 Genomes Project.
- · Index size is less than one third of that of an state-of-the-art method while pattern search is faster.

Response Technologies against Multiple Device-Channel Attack in Future Complex Computing Environments   Dec. 2013 - Dec. 2014
- · Developed a malicious traffic detection method on DARPA 2000 Dataset and ISOT Botnet Dataset.

PATENTS

Kunsoo Park, Hyunjoon Kim, and Hyun-Kyung Noh. "Keyboard for typing chinese character." U.S. Patent Application 16/134,734, filed March 21, 2019.

Hyun-Kyung Noh, Kunsoo Park, and Hyunjoon Kim. "Chinese character input apparatus and controlling method thereof." U.S. Patent Application 16/028,832, filed January 10, 2019.

TEACHING EXPERIENCE

Mentor in Samsung Convergence Software Course (SCSC)   Aug. 2015 - Jun. 2016
- · Motivated undergraduate students, and assisted them in reviewing CSE courses.

Teaching Assistant
- · 4190.407 Algorithms, Seoul National University   Mar. 2014 - Jun. 2014
- · 4190.306 Automata theory, Seoul National University   Sep. 2015 - Dec. 2015
- · Special lecture on IT convergence, Korea National Open University   Sep. 2015 - Dec. 2015

HONORS

Hyunsong Educational & Cultural Foundation Scholarship   Mar. 2010 - Dec. 2012

· Supported by full-tuition scholarship for undergraduate engineering students with high GPAs.

National Scholarship   Sep. 2009 - Dec. 2009

· Fully funded by Seongnam City Scholarship Committee for undergraduate studies.